

URBAN WATER SECURITY: CLIMATE CHANGE ADAPTATION STRATEGIES IN CHENNAI, INDIA

By

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ABSTRACT

Chennai, a typically large city in south India, with a growing population faces climate change related serious threats to the already growing water scarcity. The aims of this study were: to describe climatic variations, to analyse the supply- and demand-side policies and adaptation strategies and to provide recommendations based on this analysis.

Mixed- method and accidental sampling method were used for data collection. The data show that, even with 700mm and 1100mm of annual rainfall, Chennai still has water shortages. The water demand is 900 ml/d for the urban domestic sector (households), while there is only 700 to 730 ml/d supplied. The survey results implied that an increase in water use efficiency is much needed. Although, Chennai has 100% pipe connections, water supply is intermittent. Eighty-seven percent (87%) of respondents reported concerns about sporadic supply, low quality and poor service. Respondents notified that purchase water for drinking and cooking adds to their household expense, and is on average 2% of their salary. The water price is 6 to 10 paisa per litre (for usage over 10KL), at an incremental rate. This raises major concerns regarding the fair pricing of water, as 82l/d is the per capita use.

The study concludes that Chennai has a potential water crisis due to climatic extremes and persistent insecurities. Respondent households have reported quality and service related issues. Demand management through conservation efficiency needs to be enhanced. There is need to enhance control of project management, with planning and implementations, as there are many project failures on record. The policies and programs need strengthening in order to manage supply.

The adaptation programs recommended for Chennai are the 3 R's (reduce, reuse and recycle), training and workshops, inventory of resources, and surveys of actual use (households). The major policies include efforts to rework and renovate water tanks, ponds and traditional tanks, and improve quality through monitoring stations and simple measures for implementation of Rainwater harvesting (RWH), or Artificial Recharge (AR). In addition, the strategy of using closed conduits to convey water to households, the rehabilitation of traditional tanks, and selective supply hours on several days of the month will improve conservation and improve water security in Chennai.